#10
[illegible] 3/19/04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:	Aniruddha P. Joshi et al.	§	Art Unit:	2614
Serial No.:	09/583,432	§	Examiner:	Sherrie Y. Hsia
Filed:	May 31, 2000	§		
For:	Power Management for Processor-Based Appliances	§	Atty Docket:	ITL.0361US P8580

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL APPEAL BRIEF

Sir:

Applicant respectfully appeals from the final rejection mailed March 1, 2004. This brief supplements the previous appeal brief in view of the new final rejection.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee Intel Corporation.

II. RELATED APPEALS AND INTERFERENCES

None.

Date of Deposit: March 8, 2004
I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as **first class mail** with sufficient postage on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Cynthia L. Hayden

Cynthia L. Hayden

III. STATUS OF THE CLAIMS

Claims 1, 3-5, 7-11, 13-15, and 17-20 are allowed. Claims 31-35 are rejected. Each rejection is appealed.

IV. STATUS OF AMENDMENTS

All amendments have been entered.

V. SUMMARY OF THE INVENTION

A processor-based system 10, shown in Figure 1, may include a display such as a television receiver 12 and a computer such as a set-top box 14, in accordance with one embodiment of the present invention. The set-top box 14 and the receiver 12 may both be operated using a remote control unit 16. The remote control unit 16 may include a power button 19 in one embodiment of the present invention. Similarly, the set-top box 14 may include a power button 13 in accordance with one embodiment of the present invention.

The set-top box 14 also includes an interface 22 that operates with an interface 24 on the remote control unit 16. The interface 24 on the remote control unit 16 also operates an interface 20 on the television receiver 12. Thus, in one embodiment of the present invention, the interface 24 may be an infrared interface that operates infrared interfaces 20 and 22 on the television receiver 12 and the set-top box 14 respectively.

The remote control unit 16 also includes cursor control buttons 26 that enable the remote control unit 16 to provide mouse-like functions. Control buttons 28 on the remote control unit 16 enable the selection of television channels and other operations. See specification at page 3, lines 2 through 23.

The set-top box 14 may also include a pair of sensors 15 and 17. The light sensor 15 may be a light detector that detects the amount of light in the surrounding area. For example, if the television receiver 12 is on, it may produce sufficient light to actuate the light sensor 15 in one embodiment. Similarly, a motion sensor 17 provided on the set-top box 14 detects motion in the surrounding area.

In one embodiment of the present invention, the set-top box 14 is normally maintained in a powered up state. That is, after the initial powering on of the set-top box 14, it is intended that the set-top box 14 may never be powered off again. Thus, electrical power may be supplied to the set-top box 14 at all times so that the set-top box 14 may never truly turn completely off after being plugged into an electrical outlet.

Referring to Figure 2, a state diagram for the set-top box 14 includes an "off" state 30, a "standby" state 34, an "on" state 36 and a "sleep" state 32. Before the set-top box 14 is plugged into an electrical outlet, it is in the off state 30. After it is plugged in, power is applied, as indicated by the arrow 38 and the set-top box 14 enters the standby state 34. In the standby state 34, the set-top box 14 maintains all its settings and is able to operate quickly in response to a user command. However, in the standby state 34 the set-top box 14 may be in a reduced or lower power consumption state relative to the on state 36. In an embodiment conforming to the Advanced Configuration and Power Interface (ACPI) Specification, Revision 1.0, December 22, 1996, the standby state 34 may be ACPI global system state G1, the on state 36 may be ACPI global system state G0, and the sleep state 32 may be ACPI global system state G2. See specification at page 3, line 24 through page 5, line 3.

In an embodiment in which the sleep state 32 is implemented in accordance with the ACPI G2 or soft off state, the set-top box 14 consumes a minimal amount of power. No user

mode or system mode code is run. The G2 state generally requires a large latency in order to return to the G0 or working state. The set-top box's context may not be preserved by the hardware.

In an embodiment in which the standby state 34 is implemented in accordance with the ACPI G1 or sleeping state, the set-top box 14 consumes a smaller amount of power than in the G0 or working state, user mode threads are not executed, and the set-top box 14 appears to be off from the user's perspective because the display is off. Latency for returning to the G0 or working state varies according to the wake up environment selected prior to entry into this state. Work can be resumed without rebooting the operating system because large elements of system context are saved by the hardware and the system software.

In an embodiment in which the on state 36 is implemented in accordance with the ACPI G0 or working state, the set-top box 14 dispatches user mode application threads and may execute instructions. Peripheral devices may have their power states dynamically changed. The user may select various performance/power characteristics and may optimize software for performance or battery life. The set-top box 14 responds to external events in real time.

As soon as the user presses the power button 19 on the remote control or the power button 13 on the set-top box 14, the system 10 immediately transitions to the on state 36 as indicated by the arrow 40. This is different than conventional processor-based systems in that operation of a power button 13 or 19 does not apply power to the set-top box 14, but instead transitions the set-top box 14 from the standby state 34 to the on state 36. Thus, as described above, absent unplugging the set-top box 14 from the wall plug, power is always applied. See specification at page 5, line 4 through page 6, line 14.

When the user operates a power button 13 or 19 again, either through the remote control unit 16 or on the set-top box 14, the set-top box 14 resumes the standby state 34 as indicated by the arrow 42. If at any time, power is removed from the set-top box 14 by unplugging it from the wall plug, the set-top box 14 immediately returns to the off state 30, as indicated by the arrow 48.

In some embodiments of the present invention, the sleep state 32 is not used. However, in an embodiment with the sleep state 32, if the set-top box 14 remains in the standby state 34 for a sufficiently long period of time, it may transition to the sleep state 32 as indicated by the arrow 44. However, if activity is detected, as indicated by the arrow 46, the set-top box 14 immediately returns to the standby state 34.

In the sleep state 32, the set-top box 14 may be in an even lower power consumption state than in the standby state 34. When in the sleep state 32, the set-top box 14 may be unable to immediately return to the fully operational state. That is, a time delay may be required to transition from the sleep state 32 to the standby state 34 and then on to the on state 36. The transition from the sleep state 32 to the on state 36 may take more time than the transition from the standby state 34 to the on state 36 in one embodiment.

It may be undesirable for the set-top box 14 to place the television receiver 12 in a powered down state. The user may want to watch the television receiver 12 without using any of the set-top box 14 functions. The mere fact that no activity is occurring on the set-top box 14 does not necessarily suggest that the user is not actively using the television receiver 12. See specification at page 6, line 15 through page 7, line 20.

In embodiments using the sleep state 32, to prevent extended operation in the sleep state 32, a pair of sensors 15 and 17 may be provided. If the surroundings are sufficiently bright, as

detected by the light sensor 15, the set-top box 14 immediately transitions from the sleep state 32 to the standby state 34. The light sensor 15 may be set so that the light produced by the television receiver 12 is sufficient to cause the transition from the sleep state 32 to the standby state 34. Similarly, if it is not dark in the surrounding room, the set-top box 14 may transition out of the sleep mode 32 in one embodiment. Furthermore, if activity is detected in the surrounding room through the motion sensor 17, the set-top box 14 is promptly returned to the standby state 34 in one embodiment.

Through the use of the sensors 15 and 17, the set-top box 14 may conserve electrical power while at the same time providing the consumer with an appliance-like operation. In some embodiments, the set-top box 14 may return to the standby state 34 before the user gets sufficiently close to either the remote control unit 16 or the set-top box 14 to operate a power button 13 or 19. Therefore, in most cases, the user may not see any delay in assuming the on state 36 in response to a power button 13 or 19 operation, in some embodiments of the present invention.

To maintain the context when transitioning from the standby state 34 to the sleep state 32, the context may be written to a non-volatile memory prior to entering the sleep state 32. The context includes all the settings which enable the system to return to the exact screen display and the same point in any application programs that were operative. If a non-volatile memory is not available, the transition to the sleep state 32 may be avoided. See specification at page 7, line 21 through page 9, line 2.

Referring to Figure 3A, the software 50 initially assumes a standby state as indicated by the block 90. That is, as soon as power is applied, the system assumes the standby state 34. At diamond 92 a check determines whether a power button has been operated. If so, the software

50 transitions to the on state 36 as indicated in block 94. Next, a check at diamond 96 determines whether the power button has been again actuated. If so, the system transitions back to the standby state 34 at block 90. Otherwise, the software 50 recycles and is maintained in the on state through the operation of block 94.

If in diamond 92 it is determined that the power button has not been operated, a check at diamond 98 determines whether a time out 44 has occurred. If a time out 44 has occurred, the software 50 assumes the sleep state 32 as indicated by block 100. At diamond 102 a check determines whether activity has been identified. Activity 46 may include detection of a light source or motion proximate to the system 10. If so, the software 50 resumes the standby state 34 via block 90. Otherwise, the software 50 is maintained in the sleep state 32.

VI. ISSUES

A. Is Claim 31 Anticipated by Brusky?

B. Is Claim 31 Anticipated by Miyagawa?

VII. GROUPING OF THE CLAIMS

Claims 32-35 may be grouped with claim 31.

VIII. ARGUMENT

A. Is Claim 31 Anticipated by Brusky?

Claim 31 calls for enabling a processor-based system to transition from a lower power consumption state to a higher power consumption state in response to operation of a television

receiver. Thus, it must be the operation of the television receiver that in one case controls the transition from lower to higher power consumption states.

In the office action it is indicated that the transition from a lower power consumption state to a higher power consumption state in response to operation of a television receiver is met by pressing the power button 132, changing the TV system from the suspense state to the on state, citing column 5, lines 30-35 and column 7, lines 23-24 of Brusky.

However, as pointed out in the material cited by the Examiner at column 5, lines 18 and 19, a common control is used for the PC/TV in the form of the remote unit. In other words, operating the remote control button to turn on, provides a turn on signal to both the television and the PC.

The claim calls for the processor-based system to transition power consumption states "in response to operation of a television receiver." In Brusky, the PC part of the PC/TV does not power up in response to operation of a television receiver. It responds only to the on/off button, which separately supplies power to both the PC and the TV. As a result, it cannot be said, in Brusky, that the power consumption state change is "in response to operation of a television receiver."

Therefore, the rejection of claim 31 should be reversed.

B. Is Claim 31 Anticipated by Miyagawa?

Miyagawa does not even have anything to do with a processor-based system that changes from lower to higher power consumption states. The asserted processor-based system is the VTR 10. Nowhere in the Miyagawa patent does it indicate that the VTR 10 is processor-based or that it changes power consumption states.

Moreover, there is no indication that turning on the television turns on the VTR. The material cited at column 6, lines 57-61, clearly contemplates that the television is already on and

that a signal VTR-on supplied by the remote commander 7 is applied through the television to the VTR. The claim requires that the processor-based system, which the Examiner asserts is a VTR 10, must transition from a lower power consumption state to a higher power consumption state in response to operation of the television receiver. This plainly does not occur in Miyagawa.

Therefore, the rejection of claim 31, based on Miyagawa, should be reversed.

IX. CONCLUSION

Applicants respectfully request that the final rejection be reversed and that the claims subject to this Appeal be allowed to issue.

Respectfully submitted,

Date: March 8, 2004

Timothy N. Trop, Reg. No. 28,994
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Suite 100
Houston, TX 77024
713/468-8880 [Phone]
713/468-8883 [Fax]

APPENDIX OF CLAIMS

The claims on appeal are:

31. A method comprising:

enabling a processor-based system to transition from a lower power consumption state to a higher power consumption state in response to operation of a television receiver.

32. The method of claim 31 including transitioning the processor-based system between different power consumption states in response to operation of a power button.

33. The method of claim 32 including transitioning said system between power consumption states in response to the amount of activity on the processor-based system.

34. The method of claim 33 including transitioning said processor-based system based on activity surrounding said processor-based system.

35. The method of claim 34 including detecting motion around said processor-based system.